SUMMARY

S. SUMMARY

S.1 The Mukilteo Multimodal Project

The Washington State Department of Transportation (WSDOT), Ferries Division (also known as Washington State Ferries [WSF]) proposes the Mukilteo Multimodal Project to improve the operations and facilities serving the mainland terminus of the Mukilteo-Clinton ferry route in Washington State. The Federal Transit Administration (FTA) has provided funding during the project's planning phase and may be a source of construction funding.

WSDOT and FTA are preparing this Environmental Impact Statement (EIS) for the project in compliance with the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA). FTA is the federal lead agency for the NEPA environmental review process. WSDOT is the state lead agency for SEPA.

The ferry route is part of State Route (SR) 525, the major transportation corridor across Possession Sound, which separates Island County (Whidbey Island) from the central Puget Sound mainland. In 2012, the Mukilteo-Clinton route had the most vehicle trips and the second-highest total ridership in the system. Figure S-1 shows the regional setting and Figure S-2 shows the general project area.

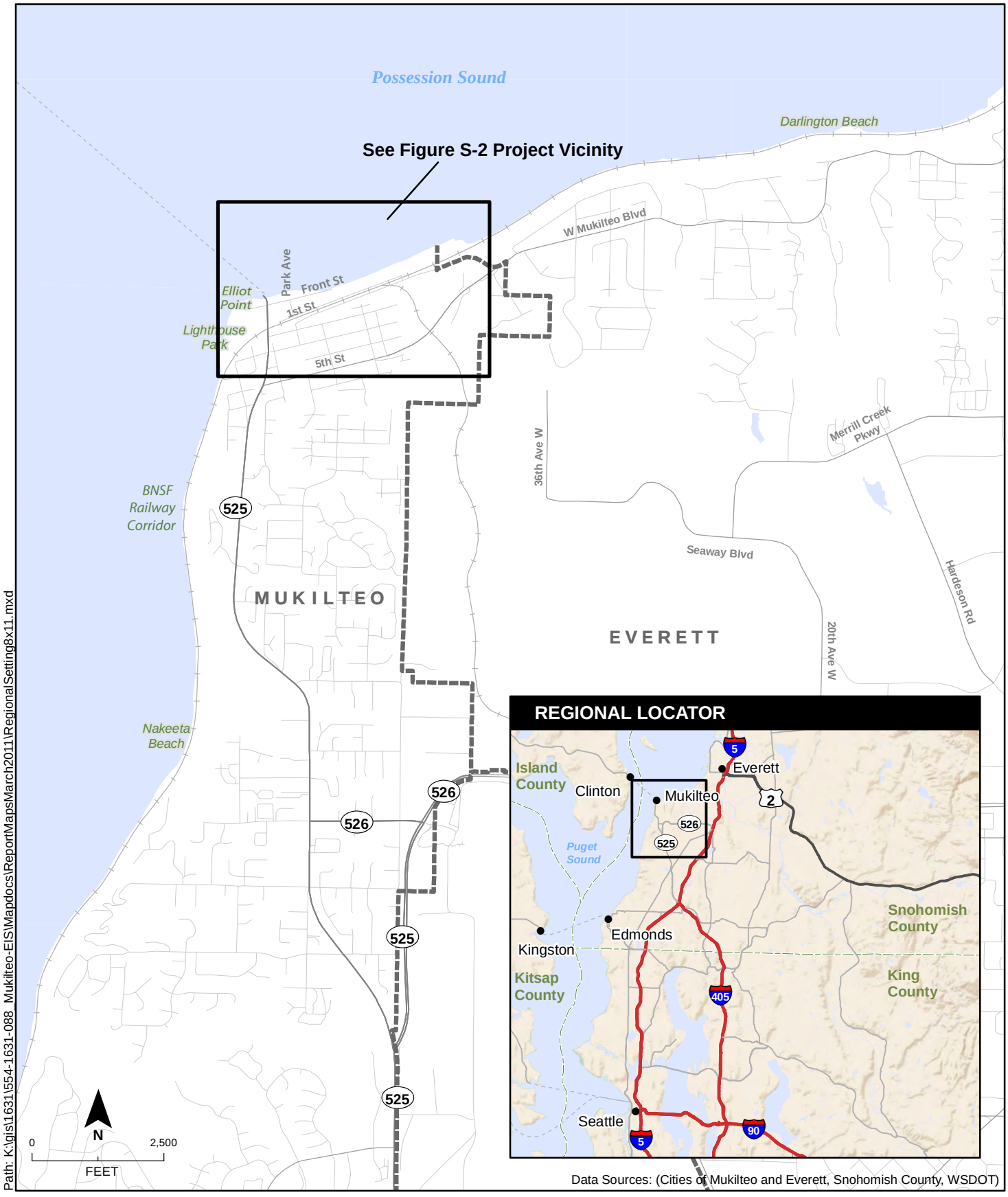
S.2 The Mukilteo Ferry Terminal Area

The existing Mukilteo ferry terminal is located in the city of Mukilteo in Snohomish County, Washington, west of the Mukilteo/Everett city line. The shoreline in this area faces north to northwest and runs primarily east-west within the project area. West of the existing terminal are Elliot Point and Mukilteo Lighthouse Park.

To the east of the existing terminal is the Mukilteo Tank Farm, a 20-acre area previously used by the U.S. Air Force, and featuring lands, buildings, and a large pier formerly used for fuel storage and loading. A research facility operated by the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service is on the west and north portion of the Mukilteo Tank Farm; the research facility is also known as the NOAA Mukilteo Research Station. The Mukilteo/Everett city line is at the eastern end of the Mukilteo Tank Farm. The Mount Baker Terminal, a marine-to-rail intermodal facility operated by the Port of Everett, is located just east, in the city of Everett.

Elliot Point and its original shoreline area have several important historic and archaeological sites, including a buried shell midden created by Native American peoples, with deposits dating back over 1,000 years. In fact, the name Mukilteo is derived from a Salish word meaning "a good place to camp."

BNSF owns and operates a railroad that runs south of the Mukilteo ferry terminal and adjacent to the southern boundary of the Mukilteo Tank Farm. The BNSF tracks mostly follow the shoreline between Seattle and Everett. East of where the railroad crosses under SR 525, it borders the Mukilteo Tank Farm, and a rail spur connection extends to the Mount Baker Terminal. Sound Transit's Sounder commuter rail also uses the BNSF tracks. Its Mukilteo Station is located southeast of Park Avenue, between the Mukilteo Tank Farm and the BNSF railroad tracks.



City Boundary

Figure S-1. **Regional Setting**

Figure S-2. **Project Vicinity**

S.3 Purpose and Need

The following purpose and need statement will guide decisions about the project.

S.3.1 Project Purpose

The purpose of the Mukilteo Multimodal Project is to provide safe, reliable, and efficient service and connections for general-purpose transportation, transit, high-occupancy vehicles (HOVs), pedestrians, and bicyclists traveling between Island County and the Seattle-Everett metropolitan area and beyond. The project is intended to:

- Reduce conflicts, congestion, and safety concerns for pedestrians, bicyclists, and motorists by improving local traffic and safety at the terminal and the surrounding area that serves these transportation needs.
- Provide a terminal and supporting facilities with the infrastructure and operating characteristics needed to improve the safety, security, quality, reliability, and efficiency of multimodal transportation.
- Accommodate future demand projected for transit, HOV, pedestrian, bicycle, and general-purpose traffic.

S.3.2 Project Need

The existing facility is deficient in a number of aspects, including safety, multimodal connectivity, capacity, and the ability to support the goals of local and regional long-range transportation and comprehensive plans, including future growth in travel demand. Those factors, which are further described below, demonstrate the need for an improved multimodal facility.

Safety and Security

Safety is WSDOT's top priority, and security at transportation facilities is a national concern. Safety and security come into play with this project in several ways: at the pedestrian/vehicle interface, with the general traffic flow in the SR 525/Front Street vicinity, and in maintaining safety and security for the facility itself. Safety and security improvements are needed because:

- The Mukilteo ferry terminal has received few improvements since it was built in 1957. The existing timber structures, including the docking facilities, are beyond the end of their useful lives.
- The existing terminal does not meet current seismic standards. The existing facility is underlain by deep, potentially liquefiable soils that are highly susceptible to lateral spreading during an earthquake.
- Changed U.S. Coast Guard and U.S. Department of Homeland Security protocols now require the ability to secure terminal areas when there is a natural disaster, heightened security alert, or other emergency. The existing facility has city streets within the terminal area and does not allow for a physical separation between the terminal and open public areas, which increases safety and security concerns, and could require WSDOT to

interrupt service or close the terminal to respond to an emergency or a heightened security alert.

- Collisions near the SR 525/Front Street intersection have included sideswipes, vehicle/pedestrian collisions, and collisions with parked vehicles.
- Because of congestion caused by ferry traffic, pedestrians often make high-risk decisions to cross the SR 525/Front Street intersection during breaks in ferry traffic; near misses between vehicles and pedestrians are common. Pedestrians who access the terminal area, transit facilities, surrounding businesses, and Mukilteo Lighthouse Park compete with vehicles for access to this intersection.
- Other inadequate facilities include a lack of passenger drop-off/pick-up areas and poor bus access to the bus bay; both increase congestion and the risk of accidents.
- Passengers who are loading and unloading from the ferry or going between the toll booth and the passenger building must traverse routes that do not meet the requirements of the Americans with Disabilities Act (ADA).

Transit Connectivity and Reliability

The current facility provides poor connections between transit, rail, and ferry modes, which significantly hamper the quality and reliability of the transportation system in this area and add to the overall transportation and safety problems related to the terminal. The major concerns are:

- Transit connections at the Mukilteo ferry terminal cannot adequately serve current or future needs. There are only two bus bays, located 200 feet away, uphill and across a major local street. The limited transit facilities are inadequate to support the current service, including staging and layover needs for transit operations, and there are limited boarding areas and amenities for transit riders. The current configuration would not allow bus service to be expanded. In addition, the Sounder commuter rail stops at the Mukilteo Station, approximately 2,000 feet from the existing terminal, and the streets between the ferry terminal and the station have missing or substandard pedestrian and bicycle facilities.
- Keeping the ferry on schedule is integral to multimodal connectivity and the ability of the system to meet growing demand by allowing passengers to make on-time connections to scheduled bus and train service. Inefficient vehicle staging slows fare collection, which delays departures. Lack of a dedicated HOV access lane makes it difficult to implement WSDOT's preferential program for carpools, and worsens operating efficiency. Also, pedestrians walking on and off the ferry use the same span that vehicles use. This requires passengers and vehicles to be loaded at separate times, which leads to system inefficiency and can cause delays that last throughout the day.

Growth in Travel Demand

The Mukilteo-Clinton route connects the two segments of SR 525—the major transportation corridor between Island County (Whidbey Island) and the Seattle-Everett metropolitan area. SR 525 is classified as a Highway of Statewide Significance. In addition to serving ongoing travel demand, SR 525 is needed to connect the communities and military facilities on the island for evacuations, disaster relief, and medical emergencies.

WSDOT's travel forecasts highlight the higher future demand for improved multimodal facilities serving the Mukilteo-Clinton route: WSDOT predicts the total number of annual riders (vehicle drivers, vehicle passengers, and walk-on passengers) on the Mukilteo-Clinton route to grow to about 5,939,000 riders in 2030, compared to 3,835,000 riders in 2012 (WSDOT 2012a).

The Mukilteo-Clinton route serves a high number of commuter trips, and growth in employment on both Whidbey Island and on the mainland is a primary reason for the predicted growth in trips by ferry. In response, the *Washington State Department of Transportation Ferries Division Final Long-Range Plan: 2009–2030* calls for meeting the growing travel needs at the Mukilteo ferry terminal primarily through increasing the share of walk-on trips. This reinforces the need for improved connections and facilities between ferries and other modes, including transit, bicycle, and walking (WSDOT 2009).

Other Related Objectives

Through its public planning and outreach efforts, including public scoping comments, WSDOT has also identified environmental and project development goals to help guide the project:

- The project should be fiscally responsible and supportive of state, regional, and local transportation plans including, but not limited to, the *Washington State Department of Transportation Ferries Division Final Long-Range Plan: 2009–2030* (WSDOT 2009), as well as regional and local land use plans.
- The project should be sensitive to the rich cultural and environmental resources of the vicinity in a manner that respects and enhances these resources.
- The project should not preclude development of a second slip at the terminal in the future to provide operational flexibility or additional capacity.

S.4 Alternatives

The project is considering four alternatives:

- The No-Build Alternative, which maintains the existing facility but does not improve it; this alternative provides a basis against which to compare the effects of the "Build" alternatives.
- The Preferred Alternative (a modified Elliot Point 2 Alternative), which would relocate the terminal to the western portion of the Mukilteo Tank Farm as part of an integrated multimodal center, and it would remove the existing terminal.
- The Existing Site Improvements Alternative, which would construct an improved multimodal facility by replacing the existing Mukilteo ferry terminal with an expanded terminal and multimodal center at the current site.
- The Elliot Point 1 Alternative, which would relocate the terminal to the eastern portion of the Mukilteo Tank Farm as part of an integrated multimodal center, and it would remove the existing terminal.

The three Build alternatives are the result of several years of planning by WSDOT and FTA, in coordination with other agencies, tribes, and the public. They represent three approaches to develop the project within a physically constrained waterfront area in a manner that supports the project's purpose and need while avoiding or minimizing impacts, particularly to the site of a shell midden that extends along much of the western waterfront.

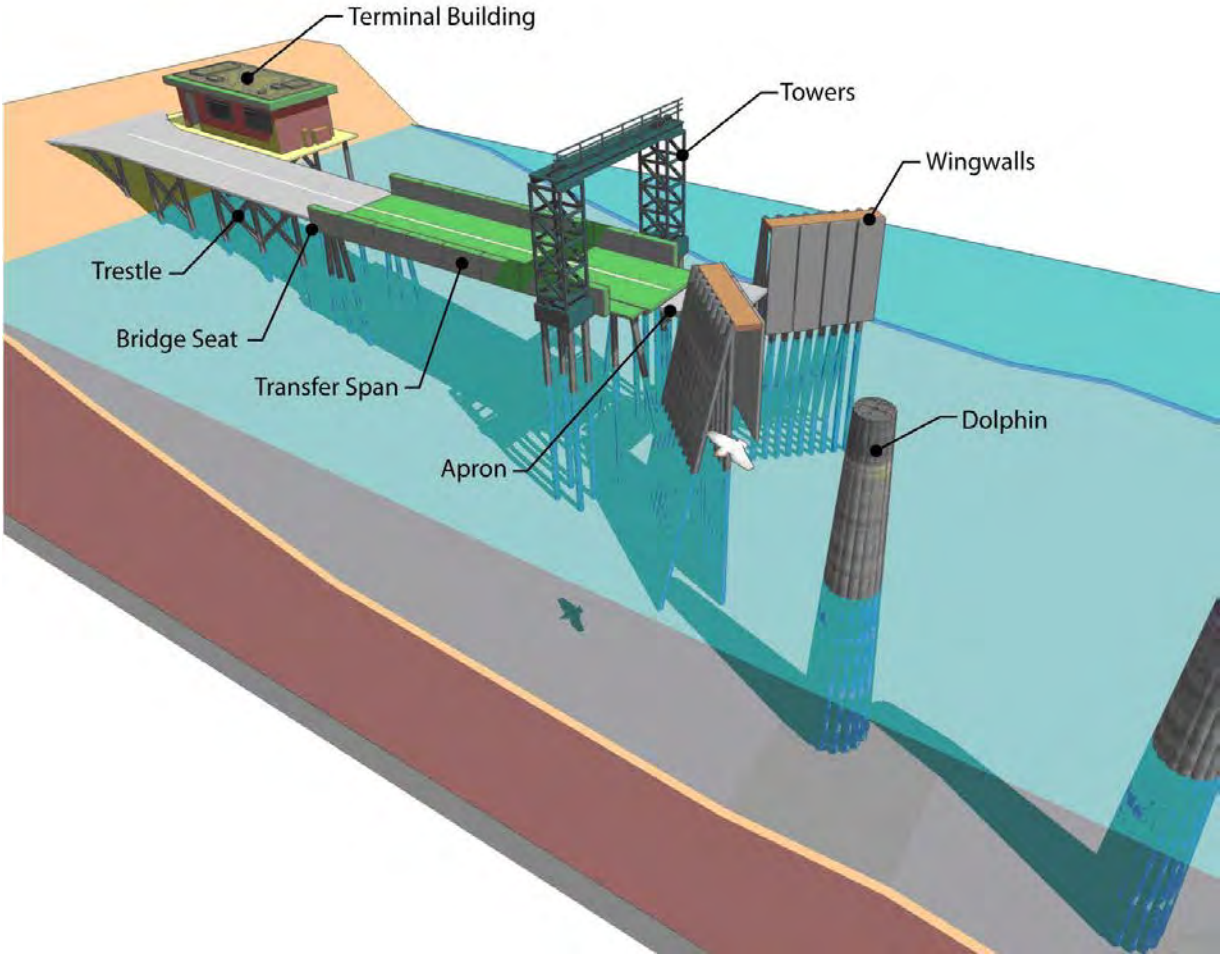
S.4.1 No-Build Alternative

The No-Build Alternative provides a baseline against which to compare the effects of the Build alternatives. It includes what would be needed to maintain the existing ferry terminal at a functional level. Figure S-3 shows the key parts of a typical ferry terminal.

Maintenance and structure replacements would occur in accordance with legislative direction to maintain and preserve ferry facilities, but WSDOT would make no major investments for improvements. Figure S-4 illustrates the elements that would be replaced as part of planned maintenance activities.

Nearly all of the ferry docking, loading, and unloading facilities would need to be replaced because they will have reached the end of their lifespan by 2040. The existing vehicle holding area would remain at its current location. The terminal supervisor's building, passenger and maintenance building, and the three existing toll booths would be replaced at their current locations. This alternative would not improve substandard conditions related to congestion, vehicular and pedestrian conflicts, poor sight distance, and security.

The estimated cost range for the No-Build Alternative is projected to be $60 to $65 million in 2015 dollars, assuming 2015 as year of expenditure, and includes construction, right-of-way costs, and engineering.



Key parts of a typical ferry terminal

fixed dolphin – an assembly of steel piles or concrete drilled shafts supporting a concrete cap and a fendering system.

floating dolphin – concrete or wooden barge structures located offshore clad with a perimeter fendering system and anchored to the seabed; used to help guide the ferry into the slip.

wingwall – an assembly of steel piles or concrete drilled shafts supporting a steel or concrete cap and a fendering system to guide and stop the ferry at its loading and unloading position.

tower – currently used to house and support the cable and counter weight system that supports, raises, and lowers the outboard end of the transfer span. (The tower system will be replaced by hydraulic lifts regardless of the alternative chosen.)

apron – adjustable ramp at the end of the transfer span that accommodates varying water heights.

transfer span – movable bridge that allows the vehicles and pedestrians access on and off the ferry; it is the link between the ferry and the trestle.

trestle and bridge seat – over-water stationary pile-supported bridge structure that serves as a connection between land and the nearshore end of the transfer span for both vehicle and pedestrian traffic (pedestrians do not use the trestle if overhead passenger loading is available).

Figure S-3. **Key Parts of a Typical Ferry Terminal**

N

0 150 300

FEET

No-Build Alternative

Elements to be replaced

Ferry Traffic Control Light

Figure S-4. **No-Build Alternative**

S.4.2 Preferred Alternative (Elliot Point 2)

Following the release of the Draft EIS and after considering comments received on it, WSDOT concluded the Elliot Point 2 Alternative best meets the project's purpose and need. The team considered suggestions from commenters and refined Elliot Point 2's design to further improve its ability to meet the purpose and need, reduce environmental impacts, or enhance other benefits. WSDOT collaborated with interested tribes and others to determine a culturally sensitive design approach to guide the project. The modified alternative is called the "Preferred Alternative" in this Final EIS.

This alternative would develop the project on the western portion of the Mukilteo Tank Farm. Its key features are shown on Figure S-5.

The Preferred Alternative would construct in-water facilities that include the features needed for the ferry berth, including wingwalls and fixed dolphins. A floating dolphin would be relocated from the existing ferry terminal. The alternative would construct a new transfer span, including hydraulic-lifting mechanisms and structures and a bridge seat foundation, as well as a new concrete trestle and bulkhead. Because there is no beach and the water is deeper at this location, the ferry slip would be close to the shore, which would allow the trestle to be shorter than other alternatives, requiring fewer piles to support the trestle. The Tank Farm Pier, which includes approximately 3,900 piles, would be removed. A channel about 500 feet wide by 100 feet long would be dredged through part of the area currently occupied by the pier to provide a navigation depth of -28 feet at an average lowest tide, which would require dredging to a depth of -30 feet. Under the pier, current depths are -15 to -35 feet. Approximately 19,500 cubic yards of material would be dredged for the channel.

The existing ferry berth and all of its marine structures would be removed, including the Port of Everett fishing pier and day moorage. The Preferred Alternative would reconstruct the fishing pier and day moorage as part of the new multimodal facility.

A new passenger building and a maintenance building would be combined as a two-story building and aligned parallel to the shoreline. The building would bridge over the vehicle driveway to the ferry trestle, and an overhead passenger loading ramp would connect to the second story of the building.

Culturally Sensitive Design

Recognizing the historic significance of the Elliot Point area, the project will be developed with cultural elements in its design. For example:

- Traditional motifs and objects, and narrative content
- Building and facility design, such as landscaping, materials, and form
- Commemorative signs, drawings, and photography
- Public educational displays

The pictures below show examples of a traditional motif and cultural identity features in a design.

"Mother Salmon" by Si Low Leet Sa Limmi
Source: Jones and Jones

Welcome Figures at Evergreen State University
Source: Jones and Jones

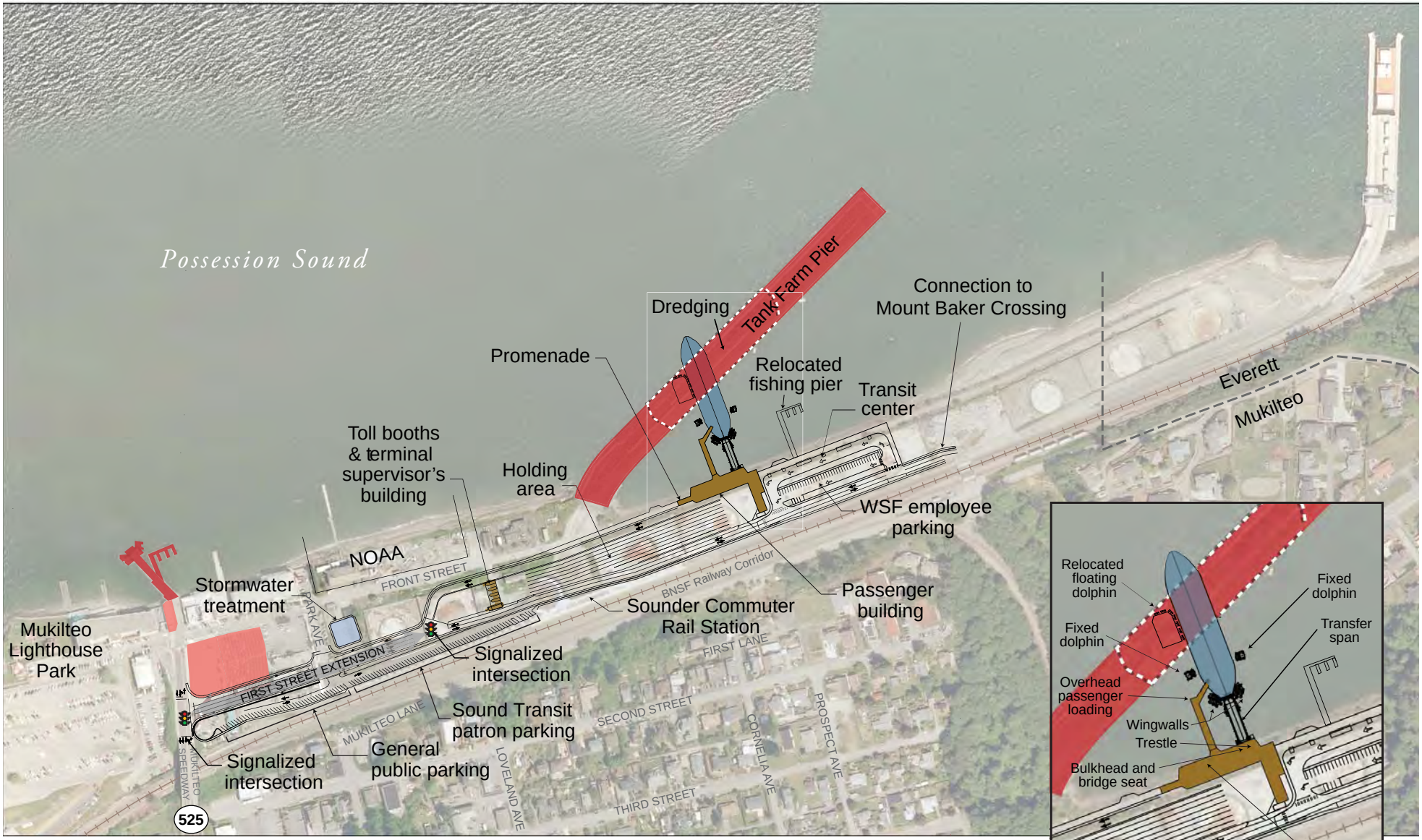


Figure S-5. **Preferred Alternative (Elliot Point 2)**

The vehicle holding area would have a 266-vehicle capacity. The terminal supervisor's building would be west of the vehicle holding area, as the second floor of a building that would also house the new toll booths. A new transit center with six new bus bays and a transit passenger area would be on the eastern part of the site, and it would have an area for ferry employee parking.

First Street would be realigned and extended as a four-lane roadway, beginning on a retained fill structure from the new signalized intersection with SR 525, descending to near the existing grade at Front Street, and continuing to a signalized entrance to the new ferry terminal. First Street would continue as a two-lane road to a new bus transit and paratransit center. This alternative would also develop a public parking area between the BNSF railroad and the new First Street extension, near SR 525, to replace some displaced street parking. It also would modify the access road and the parking for the Mukilteo Station. A stormwater treatment facility would be located between Front Street and the First Street extension east of Park Avenue.

The First Street improvements also would include a reconstructed intersection with Park Avenue. The extended roadway would generally be along the southern portion of the Mukilteo Tank Farm. First Street would feature sidewalks and bicycle lanes.

A pedestrian pathway from First Street would connect to a waterfront promenade and on to the passenger building, which would include a passage allowing continuous pedestrian access along the waterfront. Other sidewalks and crosswalks would link the Mukilteo Station and the transit center. This alternative would include new security fences and gates surrounding the holding area and terminal.

The estimated cost range for the Preferred Alternative is projected to be $125 to $135 million in 2015 year of expenditure dollars, including the costs of construction, right-of-way, and engineering.

S.4.3 Existing Site Improvements Alternative

The Existing Site Improvements Alternative would construct an improved multimodal facility by replacing the existing Mukilteo ferry terminal with an expanded terminal on and around the current site. Its key features are shown on Figure S-6.

All of the existing ferry facility marine and upland features would be replaced. The ferry dock and trestle would be rebuilt facing due north to provide a straighter alignment with SR 525. The Port of Everett existing fishing pier and seasonal day moorage would be removed and need to be relocated.

The existing vehicle holding area would remain at the same general location and would still store approximately 216 vehicles, the equivalent of one-and-one-half 144-vehicle vessels. Toll booths and a supervisor's building would be constructed nearby. A new passenger and maintenance building would be constructed east of the ferry access driveway expanding into areas currently occupied by other uses. Overhead passenger loading ramps would connect to the second story of the new passenger building.

Front Street and Park Avenue would become one-way streets, and First Street would be extended west to a new signalized intersection with SR 525. A new transit center would be constructed east of the vehicle holding lanes, combined with a parking area for ferry employees.

Figure S-6. **Existing Site Improvements Alternative**

The estimated cost range for the Existing Site Improvements Alternative is projected to be $130 to $140 million in 2015 year of expenditure dollars, including costs for construction, right-of-way, and engineering.

S.4.4 Elliot Point 1 Alternative

The Elliot Point 1 Alternative would develop the Mukilteo Multimodal Project on the eastern portion of the Mukilteo Tank Farm. Its key features are shown on Figure S-7.

Because the shoreline slopes more gradually in this location, the ferry slip would need to be located about 250 feet offshore, which would require a longer pier and trestle. A new passenger building and a maintenance building would be located over water on the new concrete trestle; this shortens walk distances and allows the nearby shoreline area to be developed for open space and stream restoration purposes. An overhead passenger loading ramp would connect to a second story of the new passenger building. A stormwater treatment facility would be located between Front Street and the First Street extension east of Park Avenue.

As with the Preferred Alternative, this alternative would remove the Tank Farm Pier and its piles, and it would dredge a navigation channel approximately 500 feet wide under where the pier is now located.

WSDOT would remove the existing ferry terminal, including buildings and marine structures, and the Port of Everett fishing pier and day moorage would be relocated. The current vehicle holding area would be vacated.

The Elliot Point 1 Alternative would also provide parking for commuter rail, the Mount Baker Terminal shoreline access area, and ferry employees. The alternative includes toll booths, ferry vehicle holding areas, and shoreline promenades on each side of the new ferry dock. Japanese Creek, which currently runs in a pipe culvert below the Mukilteo Tank Farm, would be restored to an open stream north of the extended First Street, with a 50-foot buffer on either side. The stream would be crossed by a pedestrian bridge near the shoreline.

The vehicle holding areas would hold about 216 vehicles. A terminal supervisor's building would be constructed above four new toll booths east of the holding area. This 35-foot-high structure would be oriented north-south. New lighting would illuminate First Street and the terminal facilities, including the vehicle holding areas.

First Street would be realigned and extended as a four-lane roadway from SR 525 to the Port of Everett's Mount Baker Terminal, with sidewalks and bicycle lanes. A new signalized intersection with SR 525 would be constructed. A rebuilt First Street/Park Avenue intersection would provide access to a reconfigured parking and access area for Mukilteo Station.

A new transit center with six bus bays would be built west of the new terminal. Access and parking for Mukilteo Station would be configured to connect to the First Street extension. New security fences and gates would secure the holding and terminal area during periods of heightened security, as required by the U.S. Coast Guard.

The estimated cost range for the Elliot Point 1 Alternative is projected to be $150 to $165 million in 2015 year of expenditure dollars, including the costs of construction, right-of-way, and engineering.

Figure S-7. **Elliot Point 1 Alternative**

S.5 Transportation Impacts

Future demand for travel is expected to increase through the year 2040 on the Mukilteo-Clinton ferry route. All alternatives, including the No-Build Alternative, would be served by the same vessels and on the same schedule. For this reason, the volume of vehicle trips is expected to be similar regardless of alternative. Still, the alternatives would have different effects on traffic based on ferry reliability, wait times, ferry queues, and other traffic movements.

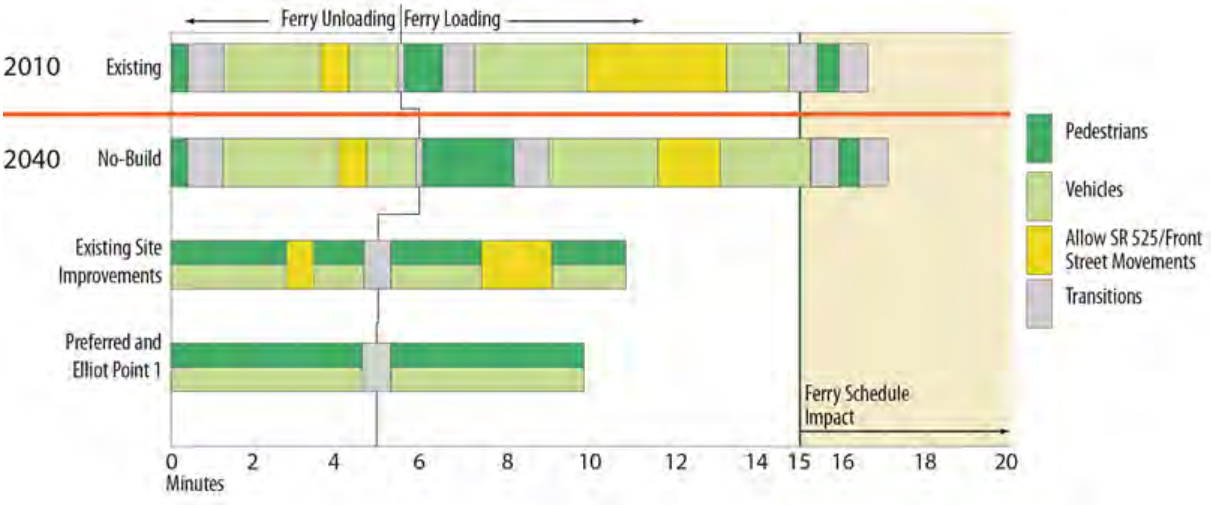
S.5.1 Ferry Terminal Operations

Ferry Loading and Unloading Times

To maintain the 30-minute headways between Mukilteo and Clinton, there is an approximate 15-minute threshold to unload and load passengers and vehicles at either terminal. When the turnaround time exceeds this threshold, ferry vessels start to run behind schedule, creating two operating challenges: reduced connection reliability and reduced cross-Sound capacity.

As illustrated in Figure S-8, field observations found existing ferry terminal unloading and loading times can exceed the 15-minute threshold in the PM peak period. These observations occurred in winter 2010 and the results were used to predict future unloading and loading times for the alternatives. In 2040, it is estimated that the No-Build terminal configuration would take PM peak period ferries, on average, approximately 17 minutes to unload and load passengers and vehicles before leaving for Clinton. This would affect the overall ferry schedule during the PM peak period.

Figure S-8. **Mukilteo Ferry Terminal Unloading and Loading Times (Observed Winter 2010, PM Peak Period)**



All three Build alternatives would provide overhead passenger loading, which would allow vehicles and walk-on passengers to load simultaneously and reduce turnaround time. For the Preferred Alternative and the Elliot Point 1 Alternative, the average load and unload time would be approximately 10 minutes, which would enable the ferries to maintain their schedules. The Existing Site Improvements Alternative would load and unload each ferry in about 11 minutes, but because ferry traffic would still cross Front Street, it would be less reliable and still conflict with local vehicle and pedestrian traffic.

Connections to Transit

As shown in Figure S-9, the Preferred Alternative would provide the shortest distance for connections between the ferry passenger building and both the commuter rail station and transit center. For connections between downtown Mukilteo and the ferry passenger building, the shortest distance would result from the No-Build and Existing Site Improvements alternatives.

Figure S-9. **Walk Distances to Passenger Buildings**

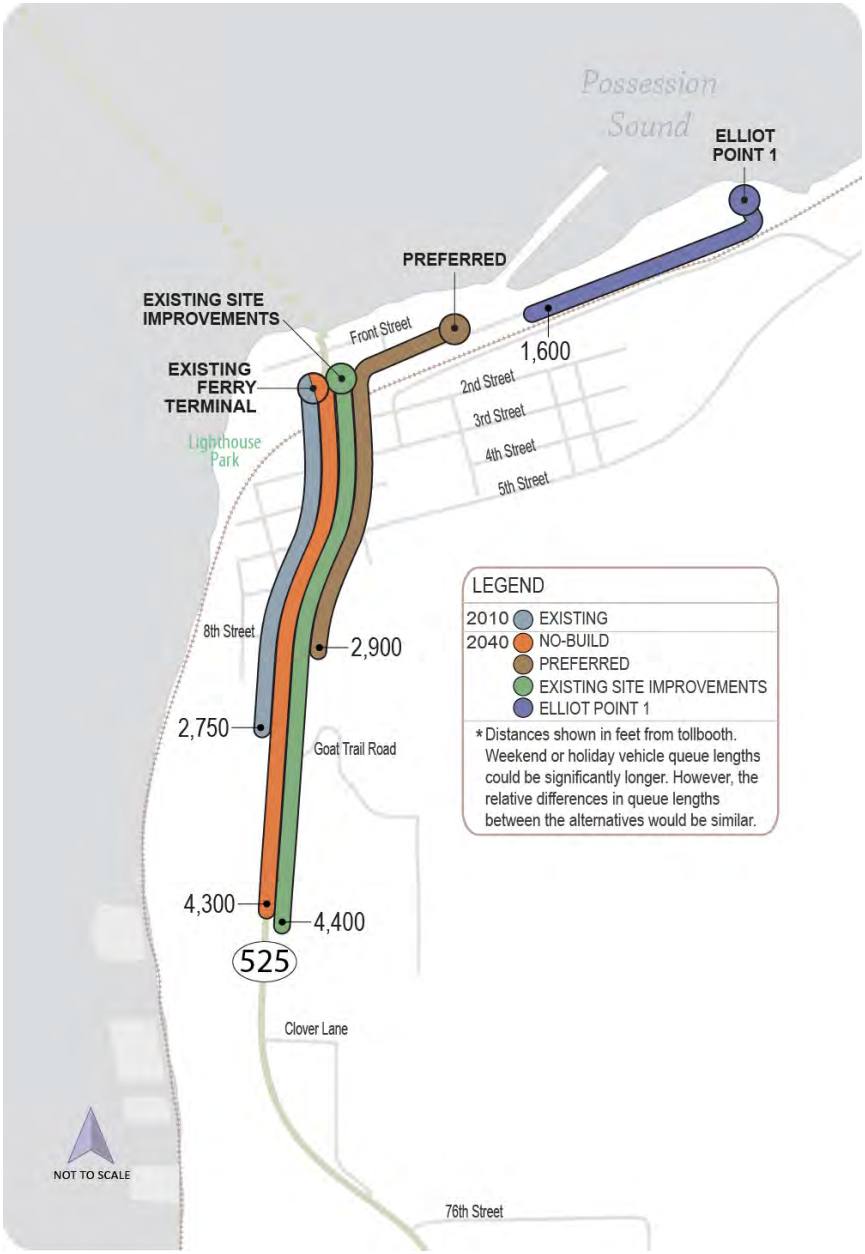
S.5.2 Traffic Operations

Ferry Shoulder Queuing

Figure S-10 shows future queue lengths on a typical weekday evening in 2040 for all alternatives, compared to 2010 conditions. Elliot Point 1 is the only alternative where vehicle queues from the toll booth would not extend to SR 525 during the PM peak period on a daily basis. Under all alternatives, higher weekend and seasonal travel would continue to create longer queues. The Preferred Alternative provides more holding lane capacity, while the Elliot Point 1 Alternative has a longer First Street extension, which also helps to

store vehicles. When vehicles queue on the shoulder of SR 525, there are more gaps for driveways and intersections, lengthening the queue for the other alternatives.

Figure S-10. **Ferry Queue Lengths (Typical PM Peak Period)**



Roadway Network

The projected 2040 roadway volumes would be the same for the No-Build Alternative and the Build alternatives because the capacity of the ferries would be the same under all scenarios. The EIS looked at intersections along SR 525 between 5th Street and Harbour Pointe Boulevard and also looked west to the Mukilteo Boulevard/Glenwood Avenue intersection. While vehicle delay at intersections would increase by 2040 for all alternatives compared to 2010, this reflects areawide traffic growth rather than growth in traffic to the ferry. Table S-1 shows the future level of service (LOS) in the PM peak hour at the intersections analyzed.

Table S-1. 2040 Level of Service (PM Peak Hour)

Intersection	Control Type	LOS	2010 Existing Delay (seconds/vehicle)	LOS	2040 No-Build and Build Alternatives Delay (seconds/vehicle)
SR 525/Harbour Pointe Boulevard	Signal	C	21	D	51
SR 525/88th Street SW	Stop sign	E	43	F	> 200
SR 525/84th Street SW/SR 526	Signal	C	28	D	52
SR 525/76th Street SW	Stop sign	C	20	D	29
SR 525/5th Street	Signal	D	51	E	55
West Mukilteo Boulevard/ Glenwood Avenue	Signal	B	14	C	24

LOS = level of service, with A representing lowest delay, and D, E, or F higher levels of delay.

For No-Build and Build alternatives, the SR 525/88th Street and SR 525/5th Street intersections would continue to operate with longer delays than the standard set by the City of Mukilteo of LOS D or better.

Parking

The project area includes on-street and off-street parking supporting a variety of uses, including businesses, general waterfront activities, ferry terminal employees, and the commuter rail station. The existing parking supply (not counting the parking at Lighthouse Park) consists of more than 200 off-street spaces, including those at the Sounder Mukilteo Station, and about 70 on-street spaces. The City of Mukilteo also maintains a parking area west of the terminal that is used for longer term parking (all day or overnight) by ferry patrons.

All of the Build alternatives would remove nearly 30 on-street parking spaces, mostly along First Street, related to the First Street extension. However, the Preferred Alternative would mitigate the impact by providing a new parking lot southwest of the First Street/Park Avenue intersection, which would increase the current parking supply by about 28 spaces. Elliot Point 1 also provides replacement parking in a new lot adjacent to the new terminal, for a net gain of about 22 spaces.

None of the alternatives alter the limited supply of spaces the City and others make available for ferry patrons who park in Mukilteo and ride the ferry. The Elliot Point alternatives would move the terminal farther away from areas that are typically used by ferry patrons. During scoping and the Draft EIS public comment period, a number of public comments requested more spaces to allow ferry users to park and ride. WSDOT considered these and other public comments as well as the project's purpose and need, WSDOT's Long-Range Plan objectives, the limited waterfront area land available, and cost and environmental factors. WSDOT found that alternatives that improved safety, security, transit, and non-motorized connections best met the project's purpose and need while minimizing environmental impacts. Additional commuter parking, which might be more convenient for some ferry patrons, is not needed to meet the project's purpose and need, given its emphasis on reducing vehicle trips to the ferry and encouraging other modes of travel.

S.6 Environmental Impacts

Table S-2 summarizes the potential environmental impacts that would result under each alternative, followed by a discussion of major impacts by environmental topic.

Table S-2. Summary of Environmental Impacts by Alternative

Area of the Environment	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Permanent Effects				
Land Use and Economics				
Full acquisitions (parcels)	0	1	5	1
Displaced residences	0	0	0	0
Displaced businesses	0	6[1]	7[1]	6[1]
Acres of Mukilteo Tank Farm property occupied	0	9	0	11
Compatibility with local land use/shoreline management plans	Low Compatibility	High to Moderate Compatibility	Low to Moderate Compatibility	High to Moderate Compatibility
Noise and Vibration (Human Environment)				
Properties with noise impacts	0	0	0	0
Properties with vibration impacts	0	0	0	0
Visual Resource Impacts	Low	Low	Low	Low
Social Environment and Environmental Justice	Low	Low	Low	Low
Historic and Cultural Resources				
Identified archaeological sites with potential adverse effects	1	2	2	3
Air Quality				
NAAQS criteria exceeded	0	0	0	0
Hazardous Materials				
Redeveloped acres of previously remediated sites	0	9	1	11
Energy and Climate Change				
Construction energy required (MBtu)	807,000	1,203,000	1,564,000	1,516,000
Geology and Soils				
Ability to address seismic and liquefaction risks	Limited	Improved	Improved	Improved
Water Resources Impacts	Low	Low	Low	Low
Ecosystems				
Net change in over-water cover (square feet)	+3,000	-129,100	+12,000	-116,300
Removal of creosote-treated piles	Existing facility only	Existing facility and about 3,900 piles at Tank Farm Pier	Existing facility only	Existing facility and about 3,900 piles at Tank Farm Pier

Table S-2. Summary of Environmental Impacts by Alternative

Area of the Environment	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Construction Effects				
Built Environment	High due to multiple terminal closures; closures could range from 3 to 9 months	Low to moderate, with greater levels of construction activity but away from public areas; little to no closure of ferry service	Moderate due to terminal closure and area disruptions; terminal closed 1 to 2 months	Low to moderate, with greater levels of construction activity but away from public areas; little to no closure of ferry service
Potential for encountering hazardous materials during construction	Low	Moderate	Low to Moderate	Moderate
Natural Environment	Moderate due to in-water construction	High due to in-water construction, pier removal, dredging	Moderate due to in-water construction	High due to in-water construction, pier removal, dredging
Use of Section 4(f) Properties	Four uses	Four uses	Four uses	Five uses

NAAQS = National Ambient Air Quality Standards; MBtu = million British thermal units

[1] There are approximately six tenants located in the Mongrain Building.

S.6.1 Land Use and Economics (including Acquisitions and Displacements)

The project would acquire between one and five properties. The acquisitions include a building that would be affected by all Build alternatives. The Existing Site Improvements Alternative would affect a waterfront restaurant as well.

The Preferred Alternative generally conforms with the City of Mukilteo *Comprehensive Plan* and Shoreline Management Program policies. WSDOT would continue to coordinate with the City of Mukilteo during final design and permitting.

The Preferred Alternative and Elliot Point 1 Alternative would reduce congestion and help support increased economic activity in the waterfront commercial area. All Build alternatives would also involve a major construction project, which would generate jobs and increase economic activity over the short term.

By continuing use of the current ferry terminal site, the No-Build and Existing Site Improvements alternatives would not be consistent with the City's plans outlined in Mukilteo Vision 2020 in its *Comprehensive Plan* nor with its Shoreline Master Program. The City's plans for the waterfront presume that the existing terminal will be relocated to the Mukilteo Tank Farm.

S.6.2 Noise and Vibration

No noise- or vibration-sensitive locations were identified during the screening process for the No Build, Preferred, and Elliot Point 1 alternatives, but six noise-sensitive locations were identified with the Existing Site Improvements Alternative. Analysis using FTA's *Transit Noise and Vibration Impact Assessment* guidance manual and the Federal Highway Administration (FHWA) traffic noise model indicate that none of the project alternatives would result in increased long-term noise or vibration impacts exceeding acceptable limits at noise-sensitive properties such as hotels or residences. Construction noise related to existing terminal removal or replacement could temporarily affect noise-sensitive residences and a hotel, but would be less with the Preferred Alternative and Elliot Point 1 Alternative because most construction would be farther away.

S.6.3 Visual Quality

The No-Build and Existing Site Improvements alternatives would occupy the same site as the existing ferry terminal and would therefore have few effects on the visual environment, except for the Existing Site Improvements Alternative's overhead passenger loading structure, which would obstruct some views from private waterfront properties. The Preferred Alternative and Elliot Point 1 Alternative would redevelop the currently abandoned industrial area of the Mukilteo Tank Farm, resulting in changes to the visual conditions at the Mukilteo Tank Farm and possibly at the existing terminal location. These changes would be largely beneficial to the visual environment. They would remove the remnants of the Mukilteo Tank Farm operations and replace it with new transportation infrastructure, including paved areas, buildings, lighting, and landscaping. They would expand opportunities for public views along the waterfront, at SR 525, and along Front Street.

S.6.4 Social Environment and Environmental Justice

Minority and low-income population would not bear disproportionately high and adverse impacts from the Preferred Alternative. None of the project alternatives would displace housing, social service providers, or ethnic or cultural establishments serving low-income or minority populations. The alternatives would be constructed either at a location where the ferry terminal exists today, or on a currently vacant site. The Preferred Alternative and the Elliot Point 1 alternative would displace the businesses at the Mongrain Building. The Existing Site Improvements Alternative would displace a restaurant, the businesses at the Mongrain Building. The Preferred Alternative and Elliot Point 1 Alternative would remove the Tank Farm Pier, which is not open to public access; however, boaters access the surrounding waters and crab fishing is popular. In the long term, crabbing and fishing would be available in much of the shoreline area, except in the immediate terminal vicinity.

The Preferred Alternative and Elliot Point 1 Alternative would increase public access to waterfront areas at the existing site and the Mukilteo Tank Farm. The No-Build and Existing Site Improvements alternatives would not increase public access to the waterfront.

All of the alternatives have some potential to affect one or more historic and pre-historic archaeological resources. Tribes in the region today trace their ancestry back

to the pre-historic inhabitants of the study area, and these resources are a link to their heritage.

The Preferred Alternative and the Elliot Point 1 Alternative would open the new terminal on the Mukilteo Tank Farm before demolishing the existing terminal, avoiding an interruption in ferry service. The Existing Site Improvements Alternative would need to temporarily close ferry service at Mukilteo during construction, which would affect businesses, individuals, and others depending on the ferry for travel.

All of the Build alternatives would remove the Port of Everett fishing pier and seasonal day moorage. The Preferred Alternative would relocate the fishing pier and moorage to the new terminal area before the existing pier is removed, which would avoid a temporary loss of access to public fishing. Similarly, the Elliot Point 1 Alternative could relocate the fishing pier and moorage to the tank farm. With the Existing Site Improvements Alternative, the pier and moorage would be removed before a replacement could be built; this would result in a temporary loss of access to public fishing and moorage at the waterfront.

If any of the Build alternatives are determined to interfere with treaty-protected tribal fishing rights, which would be an impact disproportionately borne by Native Americans, mitigation would be developed through government-to-government consultation with affected tribes.

S.6.5 Cultural, Archaeological, and Historic Resources

The project team has identified five historic and/or archaeological resources in the area of potential effects. These properties are listed on or recommended as eligible for listing on the National Register of Historic Places (NRHP):

- Mukilteo Light Station, a NRHP-listed early 20th century lighthouse complex
- Point Elliott Treaty Site, a NRHP-eligible site where the 1855 treaty between the U.S. government and Puget Sound Native American tribes was signed
- Japanese Gulch Site, a NRHP-eligible site holding archaeological deposits associated with early 20th century Japanese mill workers
- Old Mukilteo Townsite, a NRHP-eligible site holding archaeological remains of the early Mukilteo business district
- Mukilteo Shoreline Site, a NRHP-eligible archaeological site with a shell midden and other deposits dating back more than 1,000 years

Table S-3. Adverse Effects on Archaeological Resources by Alternative

Alternative	Site(s) Affected
No-Build	Mukilteo Shoreline Site
Preferred Alternative	Mukilteo Shoreline Site[1]
	Old Mukilteo Townsite
Existing Site Improvements	Mukilteo Shoreline Site
	Old Mukilteo Townsite
Elliot Point 1	Mukilteo Shoreline Site
	Old Mukilteo Townsite
	Japanese Gulch Site

[1] No elements disturb the midden but potential for encountering resources may remain.

Although the alternatives have been designed to avoid excavating within these archaeological sites, some construction would occur on or near at least one site for all alternatives. If construction activities disrupt previously undisturbed archaeological resources, WSDOT and FTA anticipate there would be adverse effects on the resources listed in Table S-3.

S.6.6 Air Quality

The project will meet air quality conformity requirements. It is included in the region's transportation plan and transportation improvement plan. It would not cause or contribute to any new violations of the National Ambient Air Quality Standards (NAAQS), and it would not delay the ability of the state or the region to attain the NAAQS.

S.6.7 Hazardous Materials

All Build alternatives have the potential for encountering contaminated materials during construction. The Preferred Alternative and Elliot Point 1 Alternative would construct the project on the Mukilteo Tank Farm. The Existing Site Improvements Alternative would place a transit center on a site with past contamination.

Construction within the tank farm site could encounter some areas where hazardous materials may remain from past site use by the U.S. Air Force, although the Washington State Department of Ecology issued a 2006 letter stating that the U.S. Air Force satisfied the provisions of its enforcement order and no further groundwater monitoring was required. Construction could also encounter metal tanks, piping, and other potential sources of hazardous materials associated with the former Mukilteo Tank Farm operation. Other hazardous materials may be present in aboveground structures. However, in most areas WSDOT proposes to remove only aboveground structures and would place fill above the existing surfaces to avoid disturbing potentially contaminated soils. Pavement or other treatments would also prevent the potential spread of hazardous materials through infiltration of stormwater, if contamination remains in underlying soils. Any hazardous materials found during construction would require handling and appropriate treatment in accordance with applicable regulations. Overall, environmental impacts would be low, and any further work to manage hazardous materials would be an environmental benefit.

All alternatives would remove creosote-treated piles used for the current terminal. The Preferred Alternative and Elliot Point 1 Alternative would also remove the Tank Farm Pier and its 3,900 piles. Although this action would permanently remove a large volume of hazardous materials, construction activities such as the pier and pile removal, or dredging of potentially contaminated sediments, could release some hazardous materials.

S.6.8 Energy and Climate Change

A comparison of long-term impacts among the alternatives showed no major differences among the alternatives. Some alternatives would reduce energy use and emissions, but the reductions would be modest compared to total regional emissions. Construction energy use and emissions of greenhouse gases would be higher for the Existing Site Improvements and Elliot Point 1 alternatives than for the No-Build Alternative and Preferred Alternative (Table S-4). The energy required would not markedly affect energy supply or demand, considering available energy resources for the region.

Table S-4. Potential Construction Impacts on Energy Use and Emissions by Alternative

	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Energy (MBtu)	807,000	1,203,000	1,564,000	1,516,000
Greenhouse gas emissions (MT CO_2e)	62,000	91,000	120,000	115,000

$M = millions dollars

MBtu = million British thermal units

MT CO_2e = metric tons of carbon dioxide equivalents

S.6.9 Geology and Soils

The No-Build Alternative would have more potential for adverse impacts related to soils and geologic risks than the Preferred Alternative or other Build alternatives, which would develop completely new facilities meeting current seismic standards and applying current engineering design and construction techniques. The No-Build Alternative's replacements or upgrades to vulnerable older structures would be more gradual, leaving some structures susceptible to damage during an earthquake.

The existing terminal site would have more potential to experience earthquake-induced liquefaction and lateral spreading that could cause structural damage or failure. A large submarine landslide has been identified near the existing site. A new submarine landslide could undermine foundation structures or reduce the lateral capacity of the sediments, leading to damage or collapse of offshore structures. This risk would be greatest for the Existing Site Improvements Alternative because it would be closest to the submarine landslide area. The risk would be a less for the Preferred Alternative and Elliot Point 1 Alternative. However, deep foundations and designs meeting current seismic standards would reduce the risk for all three Build alternatives.

S.6.10 Water Resources

All alternatives could affect water resources as a result of stormwater runoff from impervious surfaces (roadways and parking areas), shading of vegetated shoreline areas, and accidental spills of hazardous material. The Preferred Alternative and Elliot Point 1 Alternative create the most new impervious surfaces, although many portions of the Mukilteo Tank Farm are partly impervious already. All of the Build alternatives would upgrade stormwater management systems to meet current requirements, and would result in a net decrease in pollutant concentrations. The No-Build Alternative would have minimal stormwater management improvements.

The Elliot Point 1 Alternative would include more over-water structures than the other alternatives because of the distance from the shore to its deep-water slip location, but all alternatives would develop new over-water structures on piles. The Elliot Point 1 Alternative would restore Japanese Creek to an open stream with a 50-foot buffer on each side of the stream, which would be beneficial.

The Preferred Alternative and Elliot Point 1 Alternative would improve water quality by removing creosote-treated piles and timber at the existing terminal and the Tank Farm Pier. Both alternatives would dredge and remove potentially contaminated sediments within the footprint of the Tank Farm Pier. Short-term construction impacts during pier removal, dredging, and in-water construction could increase turbidity; however, with protective measures in place, impacts would be minimized.

S.6.11 Ecosystems

Each alternative would remove creosote-treated piles and decking from the existing terminal, which would help to reduce potential contamination to sediments, water quality, and marine organisms. In addition, the Preferred Alternative and Elliot Point 1 Alternative would demolish the Tank Farm Pier and remove its associated 3,900 creosote-treated timber piles. If contaminated sediments are present, they would also be removed or managed to reduce potential impacts to water quality and ecosystems. While this would restore conditions to a more natural state, it would remove habitat that attracts Dungeness crab to this location. The *Mukilteo Multimodal Project Biological Assessment* (WSDOT 2012b) provided in *Appendix L* contains more information about the impacts to benthic habitat.

Each alternative would change the amount of over-water cover due to the replacement or construction of wingwalls, dolphins, transfer spans, and passenger and maintenance facilities, as well as the demolition of the existing trestle. The Preferred Alternative and Elliot Point 1 Alternative would also remove the over-water coverage of the Tank Farm Pier, as noted above. The proposed alternatives would result in the following approximate changes in over-water cover:

- No-Build Alternative: gain of 3,000 square feet
- Preferred Alternative: net removal of 129,100 square feet
- Existing Site Improvements Alternative: gain of 12,000 square feet
- Elliot Point 1 Alternative: net removal of 116,300 square feet

Potential construction impacts that are common to all alternatives include habitat disturbance due to construction activities, temporary impacts due to grading and staging, temporarily impaired water quality, and impacts on aquatic species due to underwater noise (pile-driving and pile removal).

S.6.12 Section 4(f)

Section 4(f) refers to a U.S. Department of Transportation statute protecting significant parks, recreation resources, fish and wildlife refuges, and historic properties or resources. It restricts FTA's ability to approve a project that uses land from or has adverse impacts to a potential resource. The Preferred Alternative would impact or "use" one recreational resource, the Port of Everett fishing pier, and three archaeological resources: the Mukilteo Shoreline Site, Old Mukilteo Townsite, and the Point Elliott Treaty Site. The other Build alternatives would affect the same or more resources. In the project's Section 4(f) Evaluation, FTA concludes there are no "prudent and feasible" alternatives to avoid a Section 4(f) use. With the Preferred Alternative and its accompanying mitigation measures, FTA finds the project has conducted all possible planning to minimize harm, and that the Preferred Alternative is the "least harm" alternative.

S.7 Evaluation of Alternatives

Table S-5 describes how each alternative meets the elements of the purpose and need related to transportation performance, while Table S-6 summarizes the areas where the alternatives have notably different environmental impacts.

Table S-5. Ability to Address Purpose and Need

Purpose and Need Element	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Safety and Security				
Reduces conflicts between local and ferry vehicle traffic	No	Yes	Partially, through one-way street configurations	Yes
Reduces conflicts between vehicles and pedestrians/bicyclists	No	Yes	Partially, with street revisions and overhead loading	Yes
Provides a securable facility as required by U.S. Department of Homeland Security	No	Yes	No	Yes
Addresses seismic and structural deficiencies	Partially over time, as facilities replaced	Yes	Yes	Yes
Transit Connectivity and Reliability				
Ferry schedule reliability				
• Timely and reliable loading and unloading	No	Yes	Yes, due to overhead passenger loading; delays due to traffic impacts still occur	Yes
• Minutes over/under 15-minute reliability target	2 minutes over	5 minutes under	4 minutes under	5 minutes under
Walk Distances (feet)				
• Rail station/ passenger building	1,730	745	1,650	1,610
• Transit center/ passenger building	190	225	590	540
• Transit center/rail station	1,850	970	1,190	1,080
Reliable connections (on-time bus, rail, and ferry connections)	No	Yes	Yes	Yes
Transit facilities to support growth in travel demand	No	Yes	Yes	Yes
Pedestrian and bicycle improvements	No	Yes	Yes	Yes
Local transportation system backups on SR 525	Worse than today	Improved: Reduced queuing on SR 525	Worse than today	Improved: No queuing on SR 525

Table S-6. Key Environmental Differences

Type of Environmental Impact	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Land Use	Conflicts with City of Mukilteo's plans to reconnect waterfront areas	More consistent with City's plans for waterfront areas, but conflicts with some shoreline elements	Conflicts with City of Mukilteo's plans to reconnect waterfront areas	More consistent with City's plans for waterfront areas, but conflicts with some shoreline elements
Historic and Cultural	Impacts a 1,000-year-old archaeological site	Impacts a 1,000-year-old archaeological site and a site from Old Mukilteo	Impacts a 1,000-year-old archaeological site and a site from Old Mukilteo	Impacts a 1,000-year-old archaeological site, a site from Old Mukilteo, and the site of an immigrant settlement
Hazardous Materials	Few impacts; possibility of encountering contamination during construction	Few long-term impacts; could encounter hazardous materials during construction; removes Tank Farm Pier with approx. 3,900 creosote-treated piles and existing terminal	Few long-term impacts; could encounter hazardous materials during construction	Few long-term impacts; could encounter hazardous materials during construction; removes Tank Farm Pier with approx. 3,900 creosote-treated piles and existing terminal
Ecosystems	Aquatic ecosystems benefit from replacing existing ferry facility that has creosote-treated piles; some in-water construction impacts	Aquatic ecosystems benefit from removal of creosote-treated piles at Tank Farm Pier and existing terminal. Impacts due to loss of habitat for Dungeness crabs; higher in-water construction impacts includes removing about 20,000 cubic yards of sediment under Tank Farm Pier to create a sufficiently deep channel	Aquatic ecosystems benefit from replacing existing ferry facility that has creosote-treated piles; some in-water construction impacts	Aquatic ecosystems benefit from removal of creosote-treated piles at Tank Farm Pier and existing ferry terminal. Impacts due to loss of habitat for Dungeness crabs; higher in-water construction impacts includes removing about 20,000 cubic yards of sediment under Tank Farm Pier to create a sufficiently deep channel
Protected Park, Recreation and Historic Properties – Section 4(f)	Temporary impacts to public fishing pier; impacts on archaeological site; requires mitigation agreements	Removal (use) of public fishing pier, but pier would be relocated; impacts on archaeological sites; requires mitigation agreements	Removal (use) of public fishing pier; impacts on archaeological sites; requires mitigation agreements	Removal (use) of public fishing pier, but pier could be relocated; impacts on public shoreline access area; impacts on archaeological sites; requires mitigation agreements

S.8 Public Involvement and Agency and Tribal Coordination

Since the Mukilteo Multimodal Project was initiated in 2004, WSDOT and FTA have provided frequent opportunities for interested members of the public, agencies, and tribes to engage, share concerns, and discuss specific project details with WSDOT staff. Public involvement activities to date have included public meetings, agency and tribal meetings, online meetings, and stakeholder briefings. For more information, see *Chapter 7 Agency, Tribal, and Public Involvement*.

The environmental review process for the Mukilteo Multimodal Project began with a NEPA Environmental Assessment (EA) in 2004. WSDOT held two public EA

scoping meetings in the fall of 2004. On February 17, 2006, FTA published a Notice of Intent (NOI) to prepare an EIS for the Mukilteo Multimodal Project, and announced a 30-day public comment period that ended on April 5, 2006. FTA and WSDOT requested public comments on the scope of the alternatives and the impacts to be considered, and held two public meetings in March 2006. FTA and WSDOT also held an agency scoping meeting for the EIS on March 21, 2006.

The Washington State Legislature put the project on hold in 2007 due to funding and constructability issues associated with the previously identified alternatives and to allow time for WSDOT to prepare a long-range plan for the ferry system.

WSDOT and FTA reinitiated the environmental review process in February 2010, and conducted a second scoping period, including a public comment period. WSDOT and FTA conducted another round of public scoping meetings in October 2010, hosting four in-person open houses to serve directly affected populations, and one online open house to increase participation among the broader community. Approximately 160 people attended the meetings in Whidbey Island, Mukilteo, Edmonds, and Everett; 15 people participated in the virtual online open house. WSDOT received approximately 365 public comments during the scoping period at public meetings, by mail, e-mail, and online using the Google map comment tool.

Following publication of the Draft EIS in January 2012, WSDOT and FTA hosted public meetings with hearings on February 22 and 23, 2012. The meetings in Mukilteo and Clinton included an informal open house, an overview presentation, and a formal hearing for public comment. Approximately 175 people attended the meetings.

After the close of the Draft EIS public comment period, WSDOT identified a Preferred Alternative, and FTA and WSDOT formally consulted with other agencies and tribes in accordance with the requirements of Section 106 of the Historic Preservation Act and Section 7 of the Endangered Species Act. These consultations, as well as related agency and tribal meetings on natural resource impacts, helped define additional environmental protections to be implemented as part of the project.

WSDOT and FTA involved agencies and tribes early in the environmental review process and have continued to consult since then. FTA, working with the WSDOT Mukilteo Multimodal Project Tribal Liaison, formally contacted potentially affected tribes to assess their interest in the Mukilteo Multimodal Project. In particular, FTA participated in government-to-government consultations with all the tribes who signed the Point Elliott Treaty, because the Mukilteo shoreline is recognized as the area where the treaty was signed. FTA and WSDOT have offered each potentially affected tribe the opportunity to participate in the development of the EIS. Four tribes have accepted cooperating agency status (a higher level of participation): Samish Indian Nation, Stillaguamish Tribe of Indians, Suquamish Tribe, and Tulalip Tribes. WSDOT and FTA participated in over 50 meetings with tribes from 2010 to 2013. These meetings have covered a range of environmental and project implementation issues of interest to the tribes, including the Section 106 Memorandum of Agreement (MOA). As the EIS process has continued, the key topics of discussion have been cultural resources, ecosystems, fishing, and the treaty rights of the tribes.

S.9 Next Steps

This Final EIS represents one of the final steps in the environmental review process before the lead agencies decide on the project action. To complete the NEPA process, FTA must issue a Record of Decision, which would allow WSDOT to move forward with securing funding, completing final design, obtaining required permits, construction, and beginning operations at the improved multimodal facility.